4-5-05

### PATENT COOPERATION TRE



# **PCT**

10 JAN 2005 521, 637

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

anslation		L PRELIMINARY  (PCT Article 36 and			RT 521
Applicant's or agent's	l EO	R FURTHER ACTION	See Notific		mittal of Internort (Form PCT/IPE
Cas 0 International application		rnational filing date (day/		Priority date (day	
PCT/CH200		27 mai 2003 (27.05			2002 (10.07.200
International Patent Clar F16H 55/16,	assification (IPC) or nationa 35/10	al classification and IPC			
Applicant	TECHNIC	CAL WATCH RESE	APCH I IM	TTED	
		——————————————————————————————————————	ARCH LIVE	TIED	
	11::	n report has been prepare	d by this Intern	ational Preliminar	v Examining Autho
1. This internation	nai preliminary examinano	i topott mas soon proparo			,
and is transmi	ted to the applicant accordi	ng to Article 36.			,gw
and is transmi	ted to the applicant accordi	ng to Article 36.	ng this cover si		,
and is transmit  2. This REPORT  This regarded	ted to the applicant according to the consists of a total of total	ng to Article 36.  4 sheets, including ANNEXES, i.e., sheets or report and/or sheets contains.	of the description	heet. on, claims and/or d	Irawings which hav
and is transmit  2. This REPORT  This reamender 70.16 a	ted to the applicant according to the applicant according to the consists of a total of on the consists of a total of on the consists accompanied by and are the basis for this and Section 607 of the Admit	ANNEXES, i.e., sheets containstrative Instructions und	of the description	heet. on, claims and/or d	Irawings which hav
and is transmit  2. This REPORT  This reamender 70.16 a	ted to the applicant according to the consists of a total of total	ANNEXES, i.e., sheets containstrative Instructions und	of the description	heet. on, claims and/or d	Irawings which hav
and is transmit  2. This REPORT  This regarded 70.16 a  These a	ted to the applicant according to the applicant according to the consists of a total of on the consists of a total of on the consists accompanied by and are the basis for this and Section 607 of the Admit	ng to Article 36.  4 sheets, including ANNEXES, i.e., sheets of the sheets containstrative Instructions under the sheets.	of the description	heet. on, claims and/or d	Irawings which hav
and is transmit  2. This REPORT  This regarded amended 70.16 a  These a	ted to the applicant according to the applicant according to the consists of a total of or the consist of a total of and are the basis for this and Section 607 of the Adminutes consist of a total of	ng to Article 36.  4 sheets, including ANNEXES, i.e., sheets of the sheets containstrative Instructions under the sheets.	of the description	heet. on, claims and/or d	Irawings which hav
and is transmit  2. This REPORT  This regarded 70.16 a  These a	consists of a total of  cont is also accompanied by d and are the basis for this and Section 607 of the Adminnexes consist of a total of	ng to Article 36.  4 sheets, including ANNEXES, i.e., sheets of the sheets containstrative Instructions under the sheets.	of the description	heet. on, claims and/or d	Irawings which hav
and is transmit  2. This REPORT  This regarded 70.16 a  These a  3. This report co	consists of a total of  cont is also accompanied by d and are the basis for this and Section 607 of the Adminnexes consist of a total of the mains indications relating to Basis of the report	ANNEXES, i.e., sheets or report and/or sheets containistrative Instructions under the following items:	of the description in the description of the PCT).	heet. on, claims and/or d tions made before	Irawings which have this Authority (se
and is transmit  2. This REPORT  This regarded 70.16 a  These a  3. This report con  I	consists of a total of consists of a total of cort is also accompanied by and are the basis for this and Section 607 of the Administration for the Administration indications relating to Basis of the report  Priority  Non-establishment of opin Lack of unity of invention	Annexes, i.e., sheets of report and/or sheets containistrative Instructions under the following items:	of the description in the description in the PCT). The the PCT is the PCT in	heet. on, claims and/or d tions made before	lrawings which have this Authority (see
and is transmit  2. This REPORT  This repared amends 70.16 a  These a  This report con  I III	consists of a total of cont is also accompanied by d and are the basis for this and Section 607 of the Admininexes consist of a total of the main indications relating to Basis of the report  Priority  Non-establishment of opin	Annexes, i.e., sheets of report and/or sheets containistrative Instructions under the following items:	of the description in the description in the PCT). The the PCT is the PCT in	heet. on, claims and/or d tions made before	lrawings which have this Authority (see
and is transmit  2. This REPORT  This reamender 70.16 at the second seco	consists of a total of consists of a total of cort is also accompanied by and are the basis for this and Section 607 of the Administration for the Administration indications relating to Basis of the report  Priority  Non-establishment of opin Lack of unity of invention	Annexes, i.e., sheets of report and/or sheets containistrative Instructions under the following items:	of the description in the description in the PCT). The the PCT is the PCT in	heet. on, claims and/or d tions made before	lrawings which have this Authority (see
and is transmit  2. This REPORT  This regarded 70.16 a  These a  3. This report co.  I	consists of a total of  cont is also accompanied by and are the basis for this and Section 607 of the Admin nexes consist of a total of  Basis of the report  Priority  Non-establishment of opic Lack of unity of invention Reasoned statement unde citations and explanations	ANNEXES, i.e., sheets or report and/or sheets containistrative Instructions under the following items:  a the following items:  a the following items:  a the following items:  a the following items:	of the description in the description in the PCT). The the PCT is the PCT in	heet. on, claims and/or d tions made before	lrawings which have this Authority (see
and is transmit  2. This REPORT  This regarded 70.16 a  These a  3. This report co	consists of a total of consists of a total of cort is also accompanied by d and are the basis for this and Section 607 of the Administration for th	sheets, including ANNEXES, i.e., sheets of report and/or sheets containstrative Instructions under the following items:  a high sheets.  The following items:  The Article 35(2) with regard is supporting such statements.	of the description in the description in the PCT).  Ty, inventive stead to novelty, in the interest of the description in the d	heet. on, claims and/or d tions made before	lrawings which have this Authority (see
and is transmit  2. This REPORT  This repared amended 70.16 as  These as  3. This report con  I	consists of a total of consists of a total of cort is also accompanied by d and are the basis for this and Section 607 of the Administration for th	sheets, including ANNEXES, i.e., sheets of report and/or sheets containstrative Instructions under the following items:  a high sheets.  The following items:  The Article 35(2) with regard is supporting such statements.	of the description in the description in the PCT).  Ty, inventive stead to novelty, in the interest of the description in the d	heet. on, claims and/or d tions made before	lrawings which have this Authority (see
and is transmit  2. This REPORT  This repared amended 70.16 at the second state of the	ted to the applicant according to consists of a total of ort is also accompanied by and are the basis for this and Section 607 of the Administration for	ANNEXES, i.e., sheets or report and/or sheets containistrative Instructions under the following items:  a Article 35(2) with regard to novel a supporting such statements and application the international application	of the description in the description in the PCT).  Ty, inventive stead to novelty, in the interest of the description in the d	heet. on, claims and/or ditions made before ep and industrial ap	lrawings which have this Authority (see



national application No.
PCT/CH2003/00033

I. Basis	of the re	port	·
1. With	regard to	the elements of the international application:*	
	the inter	mational application as originally filed	
	the desc	ription:	
	pages	1-3	, as originally filed
	pages		, filed with the demand
	pages	, filed with the letter of	
	the clair		
	pages		, as originally filed
	pages	, as amended (togethe	
1	pages		, filed with the demand
	pages	1-5 , filed with the letter of	
	the dray		
	pages	-	as originally filed
	pages	1/1	, as originally filed
	pages	, filed with the letter of	, and make domain
l·⊔¹	-	nce listing part of the description:	
	pages		
	pages pages		, filed with the demand
	Pages	, filed with the letter of	
2. With	regard to	o the language, all the elements marked above were available or furnished to the language and the contract of the language and the contract of the language and the language are the language.	his Authority in the language in which
		is were available or furnished to this Authority in the following language	which is:
	the lan	guage of a translation furnished for the purposes of international search (under F	Rule 23.1(b)).
	the lang	guage of publication of the international application (under Rule 48.3(b)).	
	the lan or 55.3	guage of the translation furnished for the purposes of international preliminar).	ry examination (under Rule 55.2 and/
3. With preli	h regard iminary e	to any nucleotide and/or amino acid sequence disclosed in the intern camination was carried out on the basis of the sequence listing:	ational application, the international
	contair	ed in the international application in written form.	
	filed to	gether with the international application in computer readable form.	
	furnish	ed subsequently to this Authority in written form.	
▮╚	furnish	ed subsequently to this Authority in computer readable form.	
		atement that the subsequently furnished written sequence listing does not tional application as filed has been furnished.	ot go beyond the disclosure in the
		atement that the information recorded in computer readable form is identical imished.	al to the written sequence listing has
4.	The an	nendments have resulted in the cancellation of:	
		the description, pages	
		the claims, Nos.	
		the drawings, sheets/fig	
5.		port has been established as if (some of) the amendments had not been made, the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**	since they have been considered to go
in th	lacement . his report 70.17).	sheets which have been furnished to the receiving Office in response to an invit t as "originally filed" and are not annexed to this report since they do t	itation under Article 14 are referred to not contain amendments (Rule 70.16
** Any	replacem	ent sheet containing such amendments must be referred to under item 1 and and	nexed to this report.

v.	Reasoned statement under Article 3stations and explanations supporting	5(2) with regard to nove g such statement	lty, inventive step or industrial app	licability;
۱.	Statement			
	Novelty (N)	Claims	1~5	YES
		Claims		NO NO
	Inventive step (IS)	Claims	1-5	YES
		Claims		NO
	Industrial applicability (IA)	Claims	1-5	YES
		Claims		NO

2. Citations and explanations

1. Reference is made to the following documents:

D1: FR-A-2 379 736;

D2: GB-A-1 106 636;

D3: JP-A-59 019 768.

2. Document D1, which is considered to be the prior art closest to the subject matter of claim 1, describes:

a precision gearing comprising at least two mutually engageable toothed wheels with no clearance, wherein

- the teeth on one of said wheels are provided with a radial slot dividing same into two half-teeth, and
- one of said half-teeth comprises a recess, whereby it can be resiliently deformed when tightened.

The subject matter of claim 1 differs from this known gearing in that:

• the other half-tooth is whole and is rigid enough

to ensure the correct transmission of the forces to which it is subjected.

It follows that the subject matter of claim 1 is novel (PCT Article 33(2)).

3. The problem that the present invention is intended to solve can therefore be considered to be that of providing a toothed wheel which ensures the correct transmission of forces.

The combination of features in claim 1 is not found in the prior art and cannot be derived in an obvious manner therefrom. The reasons for this are as follows: Document D1 comprises a recess in only one of the two half-teeth. Document D2 comprises flexible teeth without any slots.

As a result, claim 1 is considered to involve an inventive step (PCT Article 33(3)).

4. Claims 2 to 5 are dependent on claim 1 and therefore also fulfil, as such, the PCT requirements of novelty and inventive step.

## TRAITE DE COOPERATION EN MATIERE DE BREVETS



## PCT



REC'D 0 1 DEC 2004

WIPO

**PCT** 

### RAPPORT D'EXAMEN PRELIMINAIRE INTERNATIONAL

(article 36 et règle 70 du PCT)

Rec'd FCT/PTO 10 JAN 2005

Référence du dossier du déposant ou du mandataire	POUR SUITE A DO	NNER voir la notification préliminaire inte	on de transmission du rapport d'examen ernational (formulaire PCT/IPEA/416)		
Demande internationale No. PCT/CH 03/00333	Date du dépôt internation 27.05.2003	al <i>(jour/mois/année)</i>	Date de priorité (jour/mols/année) 10.07.2002		
Classification internationale des brevets (CIE F16H55/16	3) ou à la fois classification i	nationale et CIB	·		
Déposant TECHNICAL WATCH RESEARCH LIMITED et al.					
Le présent rapport d'examen prél international, est transmis au dép	<ol> <li>Le présent rapport d'examen préliminaire international, établi par l'administaration chargée de l'examen préliminaire international, est transmis au déposant conformément à l'article 36.</li> </ol>				
2. Ce RAPPORT comprend 4 feuill	es, y compris la présente	feuille de couverture.			
ont été modifiées et qui ser	Il est accompagné d'ANNEXES, c'est-à-dire de feuilles de la description, des revendications ou des dessins qui ont été modifiées et qui servent de base au présent rapport ou de feuilles contenant des rectifications faites auprès de l'administration chargée de l'examen préliminaire international (voir la règle 70.16 et l'instruction 607 des Instructions administratives du PCT).				
Ces annexes comprennent 1 feu	rilles.		·		
3. Le présent rapport contient des in	ndications et les pages c	orrespondantes relativ	ves aux points suivants :		
l ⊠ Base de l'opinion					
II ☐ Priorité			•		
III	on d'opinion quant à la n on industrielle	ouveauté, l'activité inv	rentive et la		
IV ☐ Absence d'unité de l'i					
V 🛭 Déclaration motivée s d'application industrie	selon la règle 66.2(a)(ii) d elle; citations et explicatio	quant à la nouveauté, ons à l'appui de cette c	l'activité inventive et la possibilité léclaration		
VI   Certains documents	cités		,,		
VII 🔲 Irrégularités dans la d	demande internationale				
VIII   Observations relative	s à la demande internati	onale			
	(1)-1-1-1	Data diaghàuamant du	précont rapport		
Date de présentation de la demande d'examen préliminaire l'achèvement du présent rapport l'achèvement de l'ach					
05.12.2003	05.12.2003 30.11.2004				
Nom et adresse postale de l'adminstration préliminaire international	chargée de l'examen	Fonctionnaire autorisé	ordinate to lace of the state o		
Office européen des brevets D-80298 Munich Tél. +49 89 2399 - 0 Tx: 523656 epmu d			· · · · · · · · · · · · · · · · · · ·		
Fax: +49 89 2399 - 4465	ooo opina a	N° de téléphone +49 8	9 2399-8916		

#### RAPPORT D'EXAMEN PRÉLIMINAIRE INTERNATIONAL

Demande internationale nº

PCT/CH 03/00333

	D	4		~~
I.	Base	au	Tapp	י נטי

1. En ce qui concerne les éléments de la demande internationale (les feuilles de remplacement qui ont été remises à l'office récepteur en réponse à une invitation faite conformément à l'article 14 sont considérées, dans le présent rapport, comme "initialement déposées" et ne sont pas jointes en annexe au rapport puisqu'elles ne contiennent pas de modifications (règles 70.16 et 70.17)):

	Desc	cription, Pages	
	1-3		telles qu'initialement déposées
	D-1/2	andications No	
		endications, No.	reçue(s) le 25.11.2004 avec télécopie
	1-5		reçue(s) le 25.11.2004 avec telecopie
	Des	sins, Feuilles	
	1/1		telles qu'initialement déposées
2.	ou lu	e qui concerne la <b>lanç</b> ui ont été remis dans la raire donnée sous ce	gue, tous les éléments indiqués ci-dessus étaient à la disposition de l'administration à langue dans laquelle la demande internationale a été déposée, sauf indication point.
	Ces	éléments étaient à la	disposition de l'administration ou lui ont été remis dans la langue suivante: ,qui est:
		la langue d'une traduc	ction remise aux fins de la recherche internationale (selon la règle 23.1(b)).
		la langue de publication	on de la demande internationale (selon la règle 48.3(b)).
		la langue de la traduc 55.3).	tion remise aux fins de l'examen préliminaire internationale (selon la règle 55.2 ou
3.	inte	ce qui concerne les <b>sé</b> rnationale (le cas éché uences :	<b>quences de nucléotides ou d'acide aminés</b> divulguées dans la demande éant), l'examen préliminaire internationale a été effectué sur la base du listage des
		contenu dans la demi	ande internationale, sous forme écrite.
		déposé avec la dema	ande internationale, sous forme déchiffrable par ordinateur.
			à l'administration, sous forme écrite.
		remis ultérieurement	à l'administration, sous forme déchiffrable par ordinateur.
		La déclaration, selon de la divulgation faite	laquelle le listage des séquences par écrit et fourni ultérieurement ne va pas au-delà edans la demande telle que déposée, a été fournie.
		La déclaration selon	laquelle les informations enregistrées sous déchiffrable par ordinateur sont identiques les séquences Présenté par écrit, a été fournie.
4.	Les	modifications ont ent	raîné l'annulation :
		de la description,	pages:
		des revendications,	nos:
		des dessins,	feuilles:

#### RAPPORT D'EXAMEN PRÉLIMINAIRE INTERNATIONAL

Demande internationale nº

PCT/CH 03/00333

5. 🏻	Le présent rapport a été formulé abstraction faite (de certaines) des modifications, qui ont été considérée comme allant au-delà de l'exposé de l'invention tel qu'il a été déposé, comme il est indiqué ci-après (règle 70.2(c)):
------	--

(Toute feuille de remplacement comportant des modifications de cette nature doit être indiquée au point 1 et annexée au présent rapport.)

- 6. Observations complémentaires, le cas échéant :
- V. Déclaration motivée selon l'article 35(2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration
- 1. Déclaration

Nouveauté Oui: Revendications 1-5

Non:

Revendications Activité inventive Oui: Revendications 1-5

Non: Revendications

Possibilité d'application industrielle Oui: Revendications 1-5

> Non: Revendications

2. Citations et explications

voir feuille séparée

<u>Concernant le point V</u> Déclaration motivée quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration

- Il est fait référence aux documents suivants:
   D1) FR-A-2 379 736;
   D2) GB-A-1 106 636;
   D3) JP-A-59 019 768
- 2. Le document D1, qui est considéré comme étant l'état de la technique le plus proche de l'objet de la revendication 1 décrit Engrenage de précision comportant au moins deux roues dentées coopérant l'une avec l'autre, et étant sans ébat, dans lequel
  - les dents de l'une des roues ont dotées d'une fente radiale qui les divise en deux demi-dents, et
  - l'une de ces demi-dents comporte une évidement lui permettant de se déformer élastiquement en cas de serrage.

L'objet de la revendication 1 diffère de cet engrenage connu en ce que:

- l'autre demi-dent est entière et possède u ne rigidité suffisante pour assurer correctement la transmission des forces auxquelles elle est soumise.

L'objet de la revendication 1 est donc nouveau (article 33(2) PCT).

3. Le problème que la présente invention se propose de résoudre peut donc être considéré comme de présenter une roue dentée assurant correctement une transmission de force.

La combinaison des caractéristiques de la revendication 1 n'est pas comprise dans l'état de la technique et n'en découle pas de manière évidente. Les raisons en sont les suivantes: Le document D1 comporte un évidement seulement dans une des deux demi-dents. Le document D2 comporte des dents flexibles sans fente.

Par conséquence la revendication 1 est considérée comme impliquant une activité inventive (article 33(3) PCT).

4. Les revendication 2 à 5 dépendent de la revendication 1 et satisfont donc également, en tant que telles, aux conditions requises par le PCT en ce qui concerne la nouveauté et l'activité inventive.

5

10

15

#### REVENDICATIONS

- 1. Engrenage de précision comportant au moins deux roues dentées (10, 14) coopérant l'une avec l'autre, et étant sans ébat, dans lequel :
  - les dents (12) de l'une des roues (10) sont dotées d'une fente radiale (26) qui les divise en deux derni-dents (22, 24), et
  - l'une de ces demi-dents (24) comporte un évidement (28) lui permettant de se déformer élastiquement en cas de serrage, caractérisé en ce que l'autre demi-dent (22) est entière et possède une rigidité suffisante pour assurer correctement la transmission des forces auxquelles elle est soumise.
- 2. Engrenage selon la revendication 1, caractérisé en ce que ladite fente radiale (26) s'étend légèrement au-delà du cercle de pied (20) de la roue.
- 3. Engrenage selon l'une des revendications 1 et 2, caractérisé en ce que ladite fente radiale (26) a, au sommet des dents (12), une largeur correspondant sensiblement à l'ébat qu'aurait l'engrenage s'il était de type classique.
- 4. Engrenage selon l'une des revendications 1 à 3, caractérisé en ce que ledit évidement (28) va en s'élargissant du sommet des dents vers le cercle de pied (20) de la roue.
- 5. Engrenage selon l'une des revendications 1 à 4, caractérisé en ce que l'épaisseur de la demi-dent évidée (24), au niveau du cercle primitif (18) de la roue, est sensiblement la moitié de celle de l'autre demi-dent (22).